

We claim:

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1. A computerized method of annotating a computer program comprising:  
parsing an annotation representation in the source code;  
5 transforming the annotation representation into intermediate language code;  
and  
generating a non-executable statement from the intermediate language code,  
the annotation information corresponding to the annotation  
representation.  
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2. The computerized method as in claim 1, further comprising:  
generating an annotation information;  
wherein the annotation information contains an address; and  
wherein the annotation information contains a plurality of arguments of the  
15 annotation representation.
3. The computerized method as in claim 2, wherein annotation information further  
comprises an annotation symbol.
- 20 4. The computerized method as in claim 2, wherein a convention in the arguments  
identifies different areas of interest.

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5. The computerized method as in claim 2, further comprising:  
generating at least one argument of the annotation representation according to a  
software component.
6. The computerized method as in claim 5, wherein the software component is selected  
from the group consisting of a macro and a command line definition.
7. The computerized method as in claim 1, further comprising:  
receiving an input argument; and  
controlling the generating of the annotation information in accordance with the  
input argument.
8. The computerized method as in claim 1, wherein:  
the parsing is performed by the front-end component of a compiler; and  
the generating is performed by the back-end component of the compiler.
9. The computerized method as in claim 1, further comprising:  
generating computer executable instructions from source code that is  
associated with the annotation representation; and

Sub A 7 associating the annotation information with the computer executable instructions that is associated with the annotation representation.

10. The computerized method as in claim 1, the generating further comprising:

5 generating annotation information from the intermediate language code, the annotation information associated with a second function, and each of the annotation information corresponding to the annotation representation; and

wherein the annotation representation is located inline the second function.

11. The computerized method as in claim 1, further comprising:

generating debug information from predetermined information; and

wherein the debug information is associated with the annotation representation.

12. The computerized method as in claim 11, wherein the predetermined information further comprises command line options.

13. The computerized method as in claim 1, wherein the representation further comprises a function call and wherein the arguments further comprise parameters.

14. A computerized method comprising:

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annotating computer source code using an intrinsic function call in the source code.

15. The computerized method as in claim 14, wherein annotating further comprises:

- 5       generating annotation information from the intrinsic function call;  
      generating a symbol having string parameters of the intrinsic function call;  
      emitting the annotation information into a computer object file; and  
      emitting the symbol to a symbol table associated with the computer object file.

10   16. The computerized method as in claim 15, wherein generating annotation information and emitting the annotation information are performed in parallel with generating a symbol and emitting the symbol.

17. The computerized method as in claim 15, further comprising:

- 15       generating computer executable instructions from source code that is  
          associated with the intrinsic function call; and  
      associating the annotation information with the computer executable  
      instructions.

20   18. The computerized method as in claim 15, wherein a convention in the string parameters identifies different areas of interest in analysis.

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19. A computerized method of controlling a first computer program analysis tool comprising:

reading annotation information in an executable computer program; and

controlling execution of the first computer program analysis tool using the information.

20. The computerized method as in claim 19, wherein, the first computer program analysis tool further comprises a program analysis tool selected from the group consisting of a debugger, profiler, a fault injector, and an optimizer.

21. The computerized method as in claim 19, wherein the annotation information having been generated from an intrinsic annotation function call that the executable computer program was compiled from, the annotation information having at least one string parameter.

22. The computerized method as in claim 19, wherein an output of the first computer program analysis tool is read as input to a second computer program analysis tool.

23. The computerized method as in claim 22, wherein the second computer program analysis tool further comprises a program analysis tool selected from the group consisting of a profiler, a fault injector, and an optimizer.

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24. A computerized method of modifying an executable computer program comprising:  
reading annotation information in an executable computer program, and  
modifying the executable program in accordance with the information in the  
annotation information.

25. The computerized method as in claim 24, wherein the modifying further comprises:  
inserting code into the executable program to perform an action in accordance  
with the information in the annotation information.

26. The computerized method as in claim 24, wherein the modifying further comprises:  
optimizing the executable program in accordance with the information in the  
annotation information.

27. The computerized method as in claim 24, wherein the annotation information having  
been generated from an intrinsic annotation function call that the executable computer  
program was compiled from, the annotation information having at least one string parameter.

28. A computer-readable medium having computer-executable instructions to cause a  
computer to perform a method comprising:  
parsing an intrinsic annotation function call, thereby generating a parsed

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annotation function; and

generating annotation information from the parsed annotation function.

29. A computer-readable medium as in claim 28, having computer-executable instructions

5 to a cause a computer to perform a method further comprising:

generating a symbol from string parameters of the intrinsic function call; and

emitting the symbol to a symbol table associated with the annotation

information.

10 30. A computer-readable medium as in claim 28, wherein the annotation information

resides in an object file that is stored on a computer-readable medium.

31. A computer-readable medium as in claim 28, wherein the intrinsic annotation function

call is generated by a software component that resides on a computer readable

15 medium.

32. A computer-readable medium as in claim 31, wherein the intrinsic annotation function

call is selected from the group consisting of a macro and a command line

definition.

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33. A computer-readable medium for controlling a computer program analysis tool comprising:

reading annotation information in an executable computer program; and  
controlling execution of the computer program analysis tool using the information.

34. The computer-readable medium as in claim 33, wherein the annotation information having been generated from an intrinsic annotation function call that the executable computer program was compiled from, the annotation information having at least one string parameter.

35. A computer-readable medium for modifying an executable computer program comprising:

reading annotation information in an executable computer program; and  
modifying the executable program in accordance with the information in the  
annotation information.

36. The computer-readable medium as in claim 35, wherein the annotation information having been generated from an intrinsic annotation function call that the executable computer program was compiled from, the annotation information having at least one string parameter.

37. The computer-readable medium as in claim 35, wherein the modifying further comprises:



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inserting code into the executable program to perform an action in accordance with the information in the annotation information.

38. A computer-readable medium for annotating a computer program comprising:

5 parsing a source annotation representation, yielding a parsed source annotation representation;  
generating annotation information from the parsed source annotation representation.

10 39. A computer-readable medium having stored thereon a data structure that is executable by a processor comprising:

annotation information corresponding to an annotation function in a source computer program.

15 40. The computer-readable medium as in claim 39, wherein the annotation information further comprises an operand corresponding to parameters of the annotation function in the source computer program.

41. A computer-readable medium having stored thereon a compiler comprising:

20 a front-end component that parses an annotation function call in source code, generating a parsed annotation function; and

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a back-end component operably coupled to the front-end component that  
generates annotation information from the annotation function call.

42. The computer-readable medium as in claim 41, wherein the back-end component  
5 further comprises:

a receiver operably coupled to the front-end component, that receives the  
parsed annotation function;

a transformer operably coupled to the receiver, that transforms the parsed  
annotation function into intermediate language code; and

10 a generator operably coupled to the transformer that generates annotation  
information from the intermediate language code.

43. A computer-readable medium having stored thereon a computer program analysis tool  
apparatus comprising:

15 a receiver of annotation information from an executable computer program; and  
an execution controller operably connected to the receiver that controls the execution  
of the computer program analysis tool using the annotation information

44. The computer-readable medium, as in claim 43, wherein the execution controller  
20 overrides the default behavior of the tool using the annotation information.

45. The computer-readable medium, as in claim 44, wherein the computer program analysis tool further comprises a computer program analysis tool.

46. A computer-readable medium having stored thereon a computer program analysis tool

5 apparatus comprising:

a receiver of annotation information from an executable computer program; and

a modifier of the executable program that modifies the executable program in accordance with the annotation information.

10 47. The computer-readable medium as in claim 46, wherein the modifier further comprises an inserter of executable computer code into the executable program to perform an action in accordance with the information in the annotation information.

48. The computer-readable medium, as in claim 46, wherein the computer program  
15 analysis tool further comprises a computer program analysis tool.